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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,371	04/25/2000	Katsuhiro Ishii	P/1905-95	8208

7590- 05/20/2004
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EXAMINER

KINKEAD, ARNOLD M

ART UNIT PAPER NUMBER

2817

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/557,371

Applicant(s)

ISHII, KATSUHIRO

Examiner

Arnold M Kinhead

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09-30-03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Please Submit IPO reference

DETAILED ACTION

Claim Objections

1. Claims 4 and 15 are objected to because of the following informalities: In claim 4, lines 1 and 3, and claim 15, lines 2 and 4, " PLI" should read – PLL--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by O' Sullivan(US 5,900,784 new cite).

The reference by O' Sullivan discloses a PLL frequency synthesizer(see figure 5) which outputs a signal, F_{out} , having a desired frequency. The PLL includes VCO(140), bias supply(170), phase detector/comparator(110) , charge pump (120) and reference oscillator F_{ref} . Note in figure 2, and col. 4, lines56-65, that optimum current ranges are shown(please note that this describes the driving limits of the pump(see figure 3)... where the charge pump output signal is counteracted to prevent the operation at the limits causing problems; i.e., these optimum ranges($I_{a'}$, $I_{b'}$, I_{c}) will inherently determine the predetermined limits for the pump in producing the control voltage required for maintaining the desired oscillator output stability. As the frequency range is changed and the pump output approaches the range limit, the control circuit(160) independently, supplies bias control to a particular oscillator subcircuit, so as to produce a stable oscillator output, within an optimum range. The lock range is widened due to the different ranges that exist for operation.

Claim Rejections - 35 USC § 103

I. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claims 4, and 13-15~~15~~ are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Sullivan(US 5,900,784 new cite) in view of Ueda(US 6,147,532) and further in view of Salvi et al(5,986,514).

The reference by O' Sullivan discloses a PLL frequency synthesizer(see figure 5) which outputs a signal, Fout, having a desired frequency. The PLL includes VCO(140), bias supply(170), phase detector/comparator(110) , charge pump (120) and reference oscillator Fref. Note in figure 2, and col. 4, lines56-65, that optimum current ranges are shown(please note that this describes the driving limits of the pump(see figure 3)...

where the charge pump output signal is counteracted to prevent the operation at the limits causing problems; i.e., these optimum ranges(1a' ,1b' ,1c) will inherently determine the predetermined limits for the pump in producing the control voltage required for maintaining the desired oscillator output stability. As the frequency range is changed and the pump output approaches the range limit, the control circuit(160) independently, supplies bias control to a particular oscillator subcircuit, so as to produce a stable oscillator output, within an optimum range. The lock range is widened due to the different ranges that exist for operation.

The reference by O' Sullivan does not show use of an output buffer on the PLL output for isolation. This too is notoriously well known as PLL' s serve as frequency synthesizers, i.e, clock circuits for timing/synchronization where loading affects the clock, for example, is typical and thus use of isolation buffers to prevent unwanted loading problems is warranted. Such exemplary use of an isolation buffer is shown in the reference to Ueda, see figure 11, and buffer 19 on the output. Lastly, the reference does not show implementation of a PLL in a radio communication system, however, this is notoriously well known in the art, and the reference by Salvi et al is relied upon to suggest this. Please see col. 2, lines 30-50 and claim 4 with regards a wireless communication system with PLL and VCO with BIAS control.

In light of the above it would have been obvious for one of ordinary skill in the art to have added buffering on the output of the O' Sullivan PLL as exemplified by Ueda, to enhance the stability of the VCO and not allow loading of the VCO output which causes the output frequency to change. Also, the reference by Salvi et al suggests use in the typical wireless/radio communication system with optimal biasing requirements for a stable output as desired.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

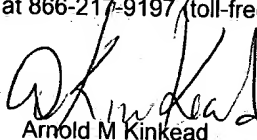
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M Kinkead whose telephone number is 571-272-1763. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnold M Kinkead

Primary Examiner

Art Unit 2817

Arnold Kinkead

May 7, 2004